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# Polish Forum for Prevention Guidelines for screening procedures for cardiovascular diseases

## Wytyczne Polskiego Forum Profilaktyki dotyczące badań przesiewowych w prewencji chorób układu sercowo-naczyniowego

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## INTRODUCTION

Medical screening is the search in a population for individuals with a given disease or the search for individuals at increased risk for this disease. Although screening is an epidemiological term, in preventive medicine it is understood as an action aimed at early diagnosis of a disease at a stage without signs or symptoms. In this form, medical screening, also called case-finding, is a strategy to identify ill patients unaware of their status and to offer them early treatment.

Two major screening strategies are applicable. The first is mass screening, involving whole populations on a large scale without any prior selection. The second strategy is called selective screening. This can be conducted on a large scale, but it is usually limited to selected groups in the population who are at high risk of having a particular disease. Screening is usually implemented as an application of a certain test or examination. When combined with a structured interview (history taking) or physical examination, it is often called 'early disease detection'. Opportunistic screening is the selective application of screening procedures (at the discretion of healthcare workers) to users of the healthcare system. For example, patients who visit their family doctor's surgery for any reason may be offered a screening procedure.

The expected benefits of screening are based on the assumption that early diagnosis can lead to early treatment, resulting in a better prognosis. This might be true. However, in particular cases, screening can cause significant harm related to false positive findings, unnecessary treatment of potentially innocent conditions, side effects of the diagnostic and curative procedures, and wasted expenditure. Certain screening techniques, although very effective, are unacceptable for patients due to their invasive nature or other inconvenience. Other procedures may involve high costs, unacceptable for individuals or societies. To balance the advantages and disadvantages of screening, the World Health Organisation has developed recommendations for good practice in this field, which are still widely applicable [1].

Cardiovascular (CV) diseases remain a major public health problem in most European countries, including Poland. They are still the main cause of mortality and strongly influence quality of life, predominantly through their impact on disability [2]. The value of preventive measures has been well documented for all kinds of interventions, including lifestyle modifications and drug treatment. There is evidence that benefits related to the long-term presence of a low risk status are particularly significant. Thus a strategy aimed at the early identification and elimination of several risk factors is especially effective [3]. There is no doubt that community based preventive programmes can reduce overall CV risk and are important tools for the improvement of public health [4]. These strategies, if adequately designed and financed, have proved their cost effectiveness [5].

These guidelines are based on the best existing evidence and international experience [6]. However, they also take into consideration specifics of the Polish healthcare system and epidemiology as well as the need for coherence with the previous recommendations of the Polish Forum for Prevention of Cardiovascular Diseases [7]. They remain an important tool helping nurses, physicians, policy makers and decision makers to decrease the burden of CV diseases in Poland.

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## GUIDELINES

I. Screening for any disease is justified only when all the following conditions are met [1]:
   1. The disease should significantly influence life expectancy or quality of life.
   2. Acceptable treatment methods should be available.
   3. The disease should have an asymptomatic period, and early diagnosis significantly reduces morbidity and mortality.
   4. Treatment in the asymptomatic period gives better results than treatment started when symptoms and signs are present.
   5. Acceptable and affordable tests to diagnose a disease in an asymptomatic stage are available.
   6. Morbidity has to be high enough to justify the costs of screening.

II. Blood pressure should be measured in all individuals over the age of 3 at least once a year; but in children with blood pressure between the 90$^{th}$ and 95$^{th}$ percentiles, as well as adults with previous readings falling in the range 120–139/80–89 mm Hg, blood pressure should be measured more often [8–10].

III. Healthy adults aged 20 years or older should be measured for total cholesterol level at least once every 5 years. The full lipid profile should be measured in all patients with high CV risk. Blood lipids should be measured also in children older than 2 years with a family history of dyslipidaemia, including family hypercholesterolaemia or the early onset of CV diseases, as well as in children with other risk factors, including those with an uncertain family history [9, 11, 12]*.

IV. All patients older than 45 years should be screened for type 2 diabetes mellitus. In cases of impaired fasting glucose, an oral glucose tolerance test should be performed. In all high risk patients and in those with pre-diabetes, the measurements should be repeated every 1–2 years, irrespective of age [9, 13].

V. In all patients older than 10 years, smoking status should be assessed. A minimal intervention to quit smoking should be offered to all smokers, according to the '5A strategy' (the 5As are: Ask, Assess, Advise, Assist, Arrange) [14–16].

VI. In all visibly overweight patients, body mass index (BMI) and waist circumference should be measured every 2 years. For overweight (BMI > 25 kg/m$^2$) and obese (BMI > 30 kg/m$^2$) patients and those with abdominal obesity, individual education about lifestyle changes and skills training should be offered [17, 18].

VII. All patients older than 13 years should be asked about the amount and frequency of their alcohol drinking as well as the number of days per week without alcohol consumption. All risky drinkers (threatening themselves or others) should be offered a short intervention to limit alcohol drinking [19, 20].

VIII. All smokers aged 55 years or older, with hypertension, type 2 diabetes mellitus or multiple CV risk factors should be asked once a year about the presence of any signs or symptoms suggesting transient ischaemic attacks [9, 21].

IX. Urinalysis should be performed once a year in all patients older than 55 years. In patients with high risk of renal diseases (i.e. diagnosed CV disease, type 2 diabetes mellitus, hypertension, or a family history of chronic renal disease) estimated glomerular filtration rate (eGFR) should be measured according to the short MDRD formula [22–24]: eGFR = $186 \times [P_{cr}: 88.4]^{-1.154} \times age^{-0.203}$ [mL/min/1.73 m$^2$ body surface]; in women, the result must be multiplied by 0.742; in black people, the result must be multiplied by 1.21 ($P_{cr}$ — creatinine serum level in mg/dL; age in years).

X. Screening should be organised, conducted and co-ordinated within separately financed preventive programmes. These programmes should include an interventional component, focused on modification of identified risk factors. Adequate public resources should be allocated to these programmes [4].

***Conflict of interest:*** *none declared*

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*Due to the European Society of Cardiology Guidelines 2011 screening test for dyslipidaemia which is lipidogram should be considered in men ≥ 40 years old and in women ≥ 50 years old or after menopause. Lipidogram should also be assessed in patients with: coronary artery disease, premature cardiovascular disease in family (< 50 years old men and < 60 years old women), dyslipidaemia, hypertension, abdominal obesity, diseases that predispose to dyslipidaemia such as: diabetes, chronic renal disease, and in patients who smoke.

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